CHAPTER 11

SOCIAL MEDIA COMMUNICATION DURING DISEASE OUTBREAKS: FINDINGS AND RECOMMENDATIONS

Harald Hornmoen and Colin McInnes

ABSTRACT

The chapter provides recommendations for key communicators' social media use during pandemic threats. Recommendations are based on findings from two sets of case studies during the 2014–2015 outbreak of Ebola in West Africa: the use by authorities in UK and Norway during the 2014–2015 West African Ebola outbreak; and the use by established media in the UK.

Keywords: Ebola outbreak; social media; health authorities; established UK media; recommendations; risk communication

INTRODUCTION

The risks from disease outbreaks and the threat of pandemics based on highly pathogenic influenza strains have risen significantly on the agendas of high income countries (HICs), such as Norway and the UK, over the past decade (Department of Health, 2008; Foreign and Commonwealth Office UK, 2003; State Department, 2004). The 2002−2003 outbreak of SARS demonstrated how novel diseases could spread to high income countries, while in 2009 the outbreaks of H1N1 'swine flu' realised concerns which had been developing over the course of the decade over the risk of pandemics. This has created a narrative where a major outbreak of a communicable disease is of global concern given its potential to spread to any part of the world, because of its macro-economic consequences and the potential impact upon stability of states and regions. As a consequence, for the first time in generations, disease outbreaks are crises for HICs, even when they originate elsewhere and the case load is highest elsewhere.

Such crises provide a challenge for health authorities, crisis communicators and news reporters' use of social media because, whereas the attention span of social media tends to be short, pandemics are extended crises − what are sometimes termed 'long wave events'. This offers particular challenges compared to a shorter term crisis in terms of maintaining interest, but also opportunities in allowing procedures to be put in place to meet the specific needs of the event (e.g. health authorities may introduce pre-authorised messages tailored to the specific disease; established media may embed reporters or hire expert commentators). Messages on social media are often short (especially micro-blogging sites such as Twitter), whereas accurate advice − and news reporting − may require detail. Whereas diagnostic testing to provide up-to-date advice may be slow, response time on social media is fast, something that leads to rumour (Coombs, 2012). Accurate information is required to prevent illness and death or mitigate fear, whereas social media is rife with mis- and disinformation. However, social media can also offer risk and crisis communicators, as well as reporters, advantages due to their greater immediacy over more traditional forms of communication, and because of their potential for tailored responses, for example, through direct monitoring and response to user's concerns rather than by inferring from past experience (Aramaki, Maskawa, & Morita, 2011; Bernardo et al., 2013). Moreover, increasing numbers of the public as well as professionals are

using social media as a source of news and information, so risk and crisis communicators need to engage with this technology if they are to efficiently convey what may be important ultimately in saving lives.

In 2014, the outbreak of Ebola in West Africa became one of the most significant news items for both social media and more traditional media (print, radio, TV) in the UK and Norway, both because of the growing scale of the crisis in West Africa, and because both Norway and the UK received citizens with Ebola that were medically evacuated from the region. In particular, the emergence of Ebola cases in the US and Europe prompted a widespread sense of risk among Western populations late in 2014, seen not least in the massive spike in social media interest (Luckerson, 2014). In responding to such risks, it is vital that the authorities communicate effectively to reassure the public and offer advice on how to avoid the infection, while established media may not only act as vectors for the spread of information but help to shape public understanding of the event.

Our focus here is to provide recommendations for key communicators in health crisis management and established journalistic media regarding their use of social media during health risks such as pandemic threats. We base our recommendations on, on the one hand, analysis of how Norwegian and UK authorities had planned for social media use in health risks and crises, and then how they actually used social media (particularly Twitter) during the 2014–2015 Ebola outbreak (McInnes & Hornmoen, 2018). This analysis provided the first detailed examination of public health authorities' plans for and use of social media during a disease outbreak in these two countries. We also draw upon insights gathered from our study (elsewhere in this volume) of the use of social media in the UK by established news media. We distinguish between 'traditional media' of print, TV and radio and 'established news media', by which we mean news organisations which existed prior to the popularisation of social media and whose origins lie in traditional media.

THEORETICAL PERSPECTIVES

The paper is framed by an understanding of social media as communication channels in which users can and often do bypass traditional gatekeepers, such as government authorities and established news media.

Crisis communicators therefore need to adjust their traditional dissemination practices if they are to communicate effectively (Coombs, 2012). Crucially, we understand that the revolutionary potential of social media for crisis communicators is in their dialogical attributes and their multiuser nature (although other factors such as agility of response are also important). The consequence of this is that, rather than one-sidedly controlling and feeding social media users with information, crisis communicators need to listen to what users are saying and provide them with access to information. Social media's innovation of user-generated content has opened up horizontal communication links between the public and authorities/established media, rather than simply vertical links of content being distributed by authorities/established media and consumed by the public.

Health authorities have traditionally pursued a vertically integrated model of crisis communication, gathering epidemiological data and using it to provide health professionals and the public with information in a coordinated and coherent way (Department of Health, 2012). Similarly, established news media have operated in a vertically integrated manner. They see their role as reporting and commenting on events using data gathered from a number of possible sources, where the reliability of the source may be a crucial factor in whether an event is reported on or not. Social media, in contrast, create both vertical and horizontal connections, allowing risk and crisis communicators as well as established media to listen and respond to users and provide them with information tailored to their concerns. As crisis communication tools, social media may be quicker than traditional media. They may reach different user groups or reinforce messaging from other sources and may provide sentiment analysis allowing authorities to reduce fear and anxiety. Relevant to this, Chew and Eysenbach (2010) concluded from a content analysis of tweets during the 2009 H1N1 outbreak that these provided a rich source of opinions and experiences, which can be used for real-time content and sentiment analysis, allowing health authorities to better respond to public concerns.

We build on Valentini and Kruckeberg's observation that social media have raised questions over the ability of organisations to respond to the nature of the medium in their crisis communications. According to them, social media's potential for real-time interactions, short response time and user-generated contents have raised questions about 'how organisations

can prepare for critical situations, managing and even exploiting the internet's capabilities for dialog in crisis communication' (Valentini & Kruckeberg, 2016, p. 482). We tested this observation by examining health authorities' plans for and use of social media during a long wave event.

The long-wave event we chose was that of a disease outbreak/pandemic and specifically the 2014−2015 outbreak of Ebola in West Africa. Unlike a terrorist incident or flood, which may be over in days or even hours, disease outbreaks last weeks and conceivably months. In the case of the Ebola outbreak we study here, the World Health Organisation (WHO) publicly announced the outbreak in March 2014 and, although the worst phase was effectively over a year later, nevertheless maintained their highest level of alert (a PHEIC, or Public Health Emergency of International Concern) into 2016. There were peaks of media interest surrounding specific events such as the meeting of the UN Security Council which declared the outbreak a risk to international peace and stability, the medical evacuation of aid workers from West Africa infected with the disease, and the transmission of the disease to health workers in the US and Europe.

RESEARCH DESIGN

In the case study of key health communicators' social media use, the focus on Norway and the UK offered a comparative element. Both are HICs for whom outbreaks of deadly diseases are novel risks; both are liberal democracies, with well-established traditions of freedom of expression reflected in their use of social media, and both countries had nationals medically evacuated home from West Africa infected with Ebola. By comparing similar countries, we may speculate more freely about whether the approaches to and problems with social media are specific to Norway or UK or perhaps more generic to HICs. We focus on Twitter as (with Facebook) one of the two most popular social media platforms at the time of Ebola. We use the West African Ebola outbreak as our test because by 2014 social media use by the general public was significant, and risk/crisis communication plans for social media were in place in both countries.

In Norway, we focused on the plans and practices of two key governmental agencies − the Norwegian Directorate of Health (NDH, *our abbreviation*) and the Norwegian Institute for Public Health (NIPH).

The NDH is responsible for monitoring conditions that affect public health and trends within the health and care services, and acts as the national normative and expert body on health matters, giving 'independent and impartial advice'. The NIPH works to improve public health by strengthening the preventive health efforts in society, and it has an overall responsibility for knowledge production and systematic reviews for the health sector. In the UK, we focused on the Department of Health (DoH) which is the lead agency for communications policy during health emergencies (UK Government, 2015), and Public Health England (PHE), which provides technical advice and expertise on epidemics.

In examining the policy and strategy adopted by Norway and the UK for the use of social media in health emergencies at the time of Ebola, we asked:

- What importance was attached by public health authorities to social media?

- What importance did public health authorities in the countries attach to gaining trust in their social media posts and how did they attempt to generate this trust?

- How did the authorities address the interactive nature of social media?

We also analysed tweets produced by the UK and Norwegian authorities to determine how social media were used. We focused upon the nature of the content, who the tweets were directed at, the discourse form and dominant speech act, and use of proxy measures ('likes' and re-tweets) to infer impact and effectiveness.

Our study of the established media's use of social media focused on the use of Twitter across four key moments in 2014.

(1) The announcement of an outbreak of Ebola Virus Disease in West Africa by the WHO in March 2014;

(2) The declaration by the WHO of a PHEIC in early August 2014;

(3) The evacuation of British nurse William Pooley from Sierra Leone on 25 August 2014; and

(4) The announcement on 29 December 2014 that the Scottish nurse Pauline Cafferkey had been diagnosed with Ebola in the UK.

We have deliberately chosen two events of international concern or interest, and two of more specific concern and interest to the UK to offer some variation allowing comparison. It is structured by addressing five areas:

(1) The nature of comments on social media, especially the balance between factual reporting and opinion or comment.

(2) The sensitivity the established media's social media use had to distinct events within the wider narrative. In particular, the degree to which their social media use maintained its focus on the long wave event – the crisis in West Africa – and the degree to which it shifted attention to other events within the context of the outbreak.

(3) The use of social media as a dialogical medium, including both replies to posts and responses to these from the originating source. Bloggers in particular have exploited the dialogical potential of social media in reporting and commenting on news stories, whereas established media would historically differentiate between their role as reporters commenting on events and authorities who have a responsibility to respond to queries.

(4) The degree to which the established media's use of social media acts as a signpost to more detailed information or reports elsewhere, either on their own website or others'.

(5) The established media's reporting on the use of social media during the outbreak – what this chapter terms 'social media-reflexivity'. This includes both the degree to which it reports on Ebola-related stories appearing in social media as well as reporting on the use (or abuse) of social media during the outbreak.

Finally, we chose three different sources in the UK, deliberately attempting to introduce some variety. The first was the national broadcaster, the BBC (@BBCNews); second, we chose a 'quality' broadsheet, *The Guardian* (@guardian) and finally we chose a large circulation tabloid with high news content, the online version of the *Daily Mail*, *MailOnline* (@MailOnline). This latter choice was also informed by the success of the *Daily Mail*'s online version, measured by subscriptions. Just before the Ebola outbreak, *MailOnline* overtook *The New York Times* as the most read online newspaper – but this also implied that the paper's audience

was less UK oriented and this wider focus might therefore lead to different results than the other two sources.

We acquired data for health authorities' use through a mixed-methods approach combining semi-structured interviews, document analysis and speech act analysis of the tweets they produced during the outbreak. We obtained data from primary source documents from governmental health agencies, for example, a national contingency plan against Ebola and advice on social use in NDH and NIPH, and strategies for general health emergencies and guidance for communication during epidemics in DoH and PHE. Data were furthermore obtained from key informant interviews (e.g. with the communications directors at NHD and NIPH) and the Twitter archive. For media use, we examined tweets sent from the source's main Twitter feed, using a structured-focused approach (George, 1979).

KEY FINDINGS

The following Table 1 summarises the health authorities' strategies and policies for the use of social media in disease outbreaks, focusing especially on the Ebola outbreak.

Our analysis displayed some clear differences between Norwegian and UK authorities in terms of the policies and strategies they adopted. Norwegian authorities emphasised social media's importance in swiftly providing people with information, whereas UK authorities paid limited strategic attention to social media. Norwegian authorities recognised Twitter's potential as a professional network, whereas UK authorities saw it as most useful for communicating with the general public. Strategy documents and interview sources in both countries emphasised the bi-directionality of social media and the importance of *listening* to establish trust and engage actively and in a positive way with users.

Nevertheless, our analysis of the authorities' Twitter postings during Ebola (and of users' response patterns to tweets with different content topics), led us to question the degree to which authorities understood and were willing to explore social media's interactive communication features. In our analyses, speech acts in each tweet collected in our material were determined according to whether they were dominated by:

Table 1: Norwegian and UK Health Authorities' Strategies and Policies for the Use of Social Media During Risk and Crises.

How to establish trust and authority in social media	NOR	NDH	By accessible, coordinated, updated info, tailored to target audience
			Use population surveys to monitor risk perceptions and to build communication on. Monitor messages on own account
		NIPH	Be honest and accessible on what they know. Inform on uncertainty
			Create informative context if legacy media overdramatise threats
	UK	DoH	Coordinate messages with other bodies. Use trusted health professionals
			Monitor social media to gauge public attitude and engagement with messages
			Use message maps for audiences, including risk groups
		PHE	Consistent messaging including shared content with DoH
			Social media part of 'business as usual' allowing build-up of user base which trusts organisation's content

Table 1: (*Continued*)

How social media flow of information and dynamics of communication is implemented	NOR	NDH	By using messengers with local authority to give advice on preventive measures via social media to local communities
			Comm. officers actively present in social media, answer direct questions
		NIPH	'Correct misconceptions', 'inform about current knowledge' through SoMe
			Respond to questions (through signposting Q and A page). Questions generate more knowledge dissemination
	UK	DoH	Two-way communication strategy, 'positively engaging' with key groups
			Track public awareness through monitoring social media
		PHE	Monitor social media through regular ad hoc 'social/online listening'
			Listening will lead to understanding concerns and creation of relevant online content

Source: Hornmoen and McInnes, forthcoming 2018.

Constatives – utterances that state something that can be judged as true or false.

Directives – utterances that are to cause the addressee to take a particular action, for example, requests, commands and advice.

Commissives – utterances that commit the speaker to some future action.

Expressives – utterances that express the speaker's attitudes and emotions.

Constative and directive speech acts, rather than expressives and commissives, characterised the authorities' messages. The dominance of such speech acts in their tweets, supplemented by links to own Q and A pages, testified to a detached position and a strategy of directing users to a website where approved content existed. This may partly reflect a lack of capacity to engage in the dialogical potential of social media, but we question the effectiveness of authorities' use of social media in that reaction to authorities' tweets (measured by number of likes and re-tweets) was surprisingly low.

In all, both Norwegian and UK authorities largely saw social media in terms of a traditional paradigm of risk and crisis communication usage, namely that such communication is to provide the public with the information which is deemed necessary by the authorities. Our analyses broadly support Valentini and Kruckeberg's (2016) observation. Although we found that authorities to some extent have adapted to using social media as a monitoring tool, they have not adapted to its dialogical nature. Moreover, social media appears better geared to respond to individual events than to long wave events such as a disease outbreak. We found that both the UK and Norwegian authorities preferred a vertically integrated approach, with little monitoring of the wider Twitter 'conversations'. We conclude that the authorities' practices and policies need to recognise the nature of the medium and exploit its potential, while we also acknowledge how authorities may need to build on established practices and adapt their policies and practices to a new media landscape rather than risk novel strategies in times of epidemic threats/crisis. Finally, impact as inferred from likes/re-tweets/comments was low, which suggests that social media was a poor medium for health authorities to pass on information to the public. We hypothesise that this does not seem to be related to the long

wave nature of the crisis; however, the crisis consisted of a number of flash points which might be considered as individual events within a broader narrative, but these failed to trigger significant attention on social media. Moreover, that the Ebola crisis was not of direct concern to Norway and the UK may be a factor; we had previously considered examining the 2009 'swine flu' crisis which was of much more direct concern, but the authorities' use of social media at the time was too slight to provide useful insights. Our findings may, however, also be related to the manner in which authorities use social media within an established communications paradigm rather than reacting to the revolutionary nature of the medium.

With regard to the established media's use of social media, our findings identified areas of consistency across three different sources, but also some differences in approach. Overall, there was an inclination towards constative rather than expressive forms. Even with *The Guardian*, which sent a number of opinion/comment-style tweets, these represented only a minority across the four cases studied. However, there was some difference in the content. Although *MailOnline*'s tweets were factual in nature, the content tended towards the more sensational and alarmist at times and consistently focused on the outbreak in general rather than the two more UK-focused events. In contrast, BBC News's focus, although factual in nature, was much more heavily oriented towards the UK-focused events, while *The Guardian* was more mixed in its coverage of the outbreak and UK events. What is also apparent is that after UK-focused events, attention quickly shifted back to coverage of the outbreak more generally.

Using likes/re-tweets/comments as a proxy for impact, the numbers across all three sources was consistently low in comparison with other major stories, especially those concerning celebrities; it was nevertheless broadly consistent with results from our study concerning tweets from authorities on Ebola (McInnes & Hornmoen, 2018). Ignoring the first of the four case studies as an outlier because of the extremely small size of the data set, for the remainder only a small minority were re-tweeted more than 100 times, and most were re-tweeted less than 50 times; almost all received fewer than 20 comments and most received fewer than 10; and most were liked by fewer than 20 people. Although there were a small number of outliers with significantly higher numbers of likes/re-tweets/ comments, many of these tapped into other interests or concerns – for example, religion or the controversial nature of online blogger Katie

Hopkins – rather than Ebola. This suggests that social media was not an effective tool for disseminating news from established media sources. Although a number of stories prompted comments from readers, discussion usually petered out quickly. None of the three media sources engaged in conversations, suggesting that they did not see their role as dialogical.

Tweets very obviously acted as signposts for stories elsewhere, but it is unclear the extent to which this was because established media saw the character limits of Twitter as problematic and wanted readers to engage in more detail with stories on websites, or whether they simply saw tweets as a means of advertising their online presence. *The Guardian* and *MailOnline* – both commercial operations – used tweets to signpost stories on their own websites, whereas BBC News, as a public service broadcaster, discussed reports elsewhere in the media – though almost always the print media rather than social media. With the exception of a story about the blogger Katie Hopkins, which was more about the blogger herself than Ebola and therefore may be considered an outlier, there was no social media reflexivity – that is, no reflection by the media on their own actions. What is also significant is that the potential to link tweets to stories or reports from authorities – that is, for the established media to act as a transparent conduit for authoritative information in times of crisis (particularly when the Scottish nurse Cafferkey was diagnosed and public concern was at its height) – was not taken up. Rather, content was mediated by the three sources examined, as would occur with traditional print media.

CONCLUSIONS AND RECOMMENDATIONS

Comparing the use of social media by authorities and established media, a number of common findings present themselves. Both preferred constative forms rather than expressive, using Twitter more often than not to make factual statements about the outbreak. Both used Twitter extensively to signpost stories elsewhere, and there is a more than a suspicion that Twitter was seen less as a means of communication in itself, than as a platform to draw attention to other forms of communication. Neither authorities nor established media engaged with comments from followers. The point was made to us on a number of occasions that this was because of a lack of capacity, but also from the authorities' perspective because of the delays in getting approved content for what would be authoritative statements on an issue. We also

hypothesise that this was a cognitive problem – that social media, and especially Twitter, were seen within a vertical communications' paradigm which was well understood by both authorities and the established media, rather than within a new horizontally networked paradigm. Neither authorities nor established media appeared to monitor their own social media, but authorities did monitor social media more generally to help them in determining the public mood. That the media did not do this may be because they did not see social media in general as a trustworthy source – a point which was made to us on several occasions by journalists and editors.

Finally, the impact of stories on social media posted by both authorities and established media appears to have been limited. This is a surprising finding since much of the narrative concerning social media relates to their growing significance, both generally as means of communication and in communicating news. We considered whether this was because Ebola was a long wave event, but events within this narrative which may be considered individually likewise had little impact. That the Ebola crisis was hardest felt in Africa, not Norway or the UK, may be a partial explanation; there is also a suspicion that the stories which attract most attention on social media concern celebrities rather than 'hard' news. But we also hypothesise that the manner in which both authorities and established media used social media – within existing communications paradigms rather than as a new medium requiring new techniques to be effective – was a contributory factor, together with their low presence in social media (especially authorities).

Based on case study findings, we provide recommendations (Table 2) for health authorities' use of social media in their pandemic crisis communication. We emphasise that our recommendations not only try to improve on deficiencies we have pointed to in current plans and practices, but also partly build on good established practices.

We emphasise the need to have a strong and continuous presence on social media during a crisis: attention needs to be given to social media communication at all phases of the disaster, crisis or emergency. The dynamic, bi-directional characteristics of social media require continuous presence if one is to respond in a timely and meaningful way in the different phases. Low levels of public reaction to the authorities' tweets in our material (measured by the numbers of posted links and re-tweets) suggested that the authorities had not developed a strong presence among Twitter users. To be present in non-crisis situations is all-important for

Table 2: Recommendations for Health Authorities' Use of Social Media During Epidemic Risks/Crises.

	When?	How?	Why?
Develop strong social media presence	In all phases of an epidemic threat or crisis, also when there is little new to say Presence also important in non-crisis or non-threatening situations	Regular updates in social media required News briefs on different health risks on own accounts without unnecessary sounding of alarms	Strengthen/maintain user engagement and improve conditions for dialogue More effective communication of advice
Develop network of trusted sources	Continuously engage in development to ensure strong network	Find trusted users with a significant base of followers to pass on advice from authorities	Enhanced implementation of measures
Listen	In all phases of an epidemic crisis or threat	Monitor the wider social media conversations, e.g. on Twitter. Use tools in monitoring of users' response to a crisis	To get a grip of moods, questions, claims, rumours and myths A prerequisite for maintaining trust and dealing with moods and myths that may develop
Engage in direct dialogue	When asked directly by users in social media about risks/crisis	Engage in two-way communication with users on own social media pages	Show that one takes users seriously, develop trust through active presence and engagement in users' concerns

	When?	How?	Why?
		Set up accounts for experts where they can answer questions about health risks from the public directly	Humanising risk/crisis communication through positive engagement
		Use language that not only includes constatives/directives, but also expressives /commissives when appropriate	
Use messengers with local authority	When urgent measures need to be taken to prevent spread of disease in outbreak regions	Act as opinion leaders and offer advice to people in affected regions	In order to establish the trust needed so that people act to avoid infection and reduce spread of infection in outbreak regions
		Use an appropriate tone of voice to target groups in affected countries	
Signpost websites	When public demand for information is strong: typically when authorities raise the level of health risk alert or when people/ users experience situations as threatening	Add links in tweets with brief information/advice	Users will be led to additional and valuable research-based information/ advice, if web page is frequently updated
		Avoid constatives such as 'Information on Ebola can be found on our web page'; that is, tweets without a vital news peg	

people to realise that the authorities are actually there, actively communicating. This can, for example, be done by providing news briefs, linking to different health risks, in this way branding oneself as an authoritative communicator, someone one can look to and rely on when crises emerge.

Strategy documents and interview sources in both countries emphasised the potential bi-directionality of social media and the importance of *listening* to establish trust and engage actively and positively with users. Particularly emphasised was the importance of getting a grip of people's reactions, emotions, questions and misconceptions especially at an early pre-crisis stage in order to provide agile – swift – response and advice. This is in line with the mental models theory (Morgan, Fischhoff, Bostrom, & Atman, 2002), which highlights that effective risk communication requires understanding of pre-existing public perceptions of high dread risks such as pandemic threats in order to convince people to prepare better for them. We question, however, why health authorities in our material still emphasise population surveys for this purpose instead of monitoring users' response to a threat by using digital tools. We recommend such tools as a more efficient way of going about doing this (Google alerts, Google trends, tweets decks, etc.).

Our interviews suggested that the bi-directionality of the health authorities' social media use was mostly a question of obtaining the best possible basis for unidirectional, pandemic risk communication. Social media's dialogical communication characteristics were viewed as something that enabled effective correction of the public's misconceptions during the outbreak, preferably by directing users to their own Q&A pages. This strategy could be supplemented by more active and direct engagement with users, something authorities also express a wish to accomplish. One way of doing that is by setting up accounts for experts. In terms of the type of language used in Twitter, we identify a clear dominance of *constatives* and *directives*. In the instances of a brief question-answer conversation taking place between external and health authority users, the authorities' language changed somewhat to include *expressives:* 'Hi again! Sorry for making you wait. Here is the explanation of […]', followed by link to own web page and *commissives:* 'Have seen your question and promise to answer'. This shift gives the impression of a more active engagement in users' concerns from the authorities.

Using messengers with local authority, was something that the Norwegian health directorate actually did during the Ebola crisis, when Facebook was an important instrument in their strategy. The directorate appointed people from Sierra Leone who were living in Norway to act as opinion leaders and offer advice to Facebook users in West Africa on preventing the spread of Ebola. The advice is in line with the so-called actionable risk communication model (Wood et al., 2011). According to this model, the most effective motivators for preparedness are not public officials, but rather community members who share what they have done to guard against risks with others who have not done much. In other words, one needs to involve community members in communicating preparedness messages.

This is also a question of understanding different cultural contexts and how local knowledge, beliefs and communities must be taken into account and effective communication plans must be adapted to environments. For example, in the Ebola-struck West African countries it is not enough to communicate hard scientific facts alone, but to know how the information is perceived, which channels can be used effectively and who the different audiences are. Western authorities should also take into consideration how it is, from an African point of view, not irrational to be sceptical about advice coming from the so-called developed world. Accordingly, for health authorities' communicators it is important to get in touch with citizens and professionals who can establish trustful relationships with local communities (see also Allgaier & Svalastog, 2015).

The last advice (signpost websites) should be treated with some caution, as it seems that authorities consider this as sufficient in their current practices. Admittedly, space is limited in a tweet and people can gather valuable advice by being directed to Q and A pages through tweets. However, one still needs to be creative and grab attention on Twitter, and we suggest that news pegs are used, followed by links to a website. An example: 'How long can #Ebola survive outside the body? Light and air reduce the life cycle of the virus and reduce the risk for infection'. Such tweets can function as an interest-provoking alternative to the preferred directives that marked authorities' tweets in our material, such as: 'We remind you that we have a question and answer page about Ebola', followed by a link.

Given the commonalities in our research findings between authorities and established media, it is perhaps unsurprising that our recommendations for established media are not dissimilar to those for authorities. We were surprised at the limited impact social media had, but were also struck by the manner in which it was used as a new technology within an existing paradigm rather than being thought of as a radical new medium requiring new working practices. There was no attempt to work with a community of followers to establish itself as a key part of a 'social' medium, in contrast to bloggers who often embrace the dialogical nature of the medium and thereby establish a strong community following their blogs. Instead, tweets appeared too often as advertising for content elsewhere, implicitly dismissing Twitter as an independent medium for disseminating news content. We would suggest that this strategy would not endear the established media to those who use Twitter (or other platforms) on a regular basis, and especially those for whom Twitter is the principal method of gaining information. Although content is limited by the number of characters available, the use of sequential tweets allows more space, while the essentials of a story can often be expressed in a limited space (as Donald Trump has shown to devastating effect). Nor is social media necessarily limited to statements of fact – indeed many use it effectively to state opinions or ask challenging questions. Although *The Guardian* did this on occasions, offering a limited number of opinion-led pieces, there was a general dearth of tweets during the Ebola outbreak which asked questions or expressed a viewpoint – again in contrast to common usage. Social media should therefore be used to do more than simply stating a fact and advertising stories elsewhere. Moreover, if tweets are to be signposted, journalists should consider signposting to primary sources rather than their own reports, especially in crises where up to date reports from authorities may save lives.

ACKNOWLEDGEMENTS

REFERENCES

Allgaier, J., & Svalastog, A. L. (2015). The communication aspects of the Ebola virus disease outbreak in Western Africa − Do we need to counter one, two, or many epidemics? *Croatian Medical Journal*, *56*(5), 496−499. doi:10.3325/cmj.2015.56.496

Aramaki, E., Maskawa, S., & Morita, M. (2011). Twitter catches the flu: detecting influenza epidemics using Twitter. In *Proceedings of the 2011 Conference on empirical methods in natural language processing* (pp. 1568−1576). Retrieved from http://www.aclweb.org/anthology/D11−1145

Bernardo, T. M., Rajic, A., Young, I., Robiadek, K., Pham, M. T., & Funk, J. A. (2013). Scoping review on search queries and social media for disease surveillance: A chronology of innovation. *Journal of Medical Internet Research*, *15*(7), e147. doi:10.2196/jmir.2740

Chew, C., & Eysenbach., G. (2010). Pandemics in the age of Twitter: Content analysis of tweets during the 2009 H1N1 Outbreak. *PLos One*, *5*(12). doi:10.1371/journal.pone.0014118

Coombs, W. T. (2012). *Ongoing crisis communication. Planning, managing and responding* (3rd ed.). Los Angeles: Sage.

Department of Health. (2008). *Health is global*. London: HMSO.

Department of Health. (2012). *UK pandemic influenza communications strategy*. London, United Kingdom. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213268/UK-Pandemic-Influenza-Communications-Strategy-2012.pdf

Foreign and Commonwealth Office UK. (2003). *UK international priorities, CM 6052*. London: HMSO.

George, A. L. (1979). Case studies and theory development: The method of structured, focused comparison. In P. G. Lauren (Ed.), *Diplomacy: New approaches in history, theory, and policy* (pp. 43−68). New York: Free Press.

Luckerson, V. (2014, October 7). Watch how word of Ebola exploded in America. *Time*. Retrieved from http://time.com/3478452/ebola-twitter/

McInnes, C. J., & Hornmoen, H. (2018). 'Add Twitter and Stir': The use of Twitter by public authorities in Norway and UK during the 2014–15 Ebola outbreak. *Observatorio (OBS*)*, *12*(2), 023–046.

Morgan, G., Fischhoff, B., Bostrom, A., & Atman, C. J. (2002). *Risk communication: A mental models approach*. Cambridge: Cambridge University Press.

State Department [US]. (2004). *Strategic plan fiscal years 2004−2009*. Washington DC: US Department of State.

Valentini, C., & Kruckeberg, D. (2016). The future role of social media in international crisis communication. In A. Schwarz, M. W. Seeger, & C. Auer (Eds.), *The handbook of international crisis communication research* (pp. 478−488). Chichester: Wiley Blackwell.

Wood, M. M., Mileti, D. S., Kano, M., Kelley, M. M., Regan, R., & Bourque, L. B. (2011). Communicating actionable risk for terrorism and other hazards. *Risk Analysis*, *32*(4), 601−615. doi:10.1111/j.1539-6924.2011.01645.x